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EXAMINER	
CHANG, EDITH M	

ART UNIT	PAPER NUMBER
2637	

DATE MAILED: 10/18/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/634,473	SCHMIDL ET AL.	
	Examiner	Art Unit	
	Edith M Chang	2637	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *July 30 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments/Remarks

1. Applicant's arguments filed July 30 2004 have been fully considered but they are not persuasive.

a. Applicant argues that the references do not have the same frequency hopping pattern with the first frequency being better than the second frequency used by the second device to communicate with the first device and the second frequency.

The reference Gillis et al. discloses the same frequency hopping pattern used between the first device and second device, wherein the first or second device is the cordless phone or its cordless phone base as shown in FIG.1. The frequency pattern is the channels available in the 902-928 MHz frequency band stated in column 4 lines 10-30 which includes the second frequency used by the second device and the first frequency determined by the first device being better (with less interference) than the second frequency. The first and second group channels/frequencies are in the same frequency pattern. Hence the reference Gillis et al. discloses the frequency pattern with the first frequency and second frequency as recited in the claim.

b. Applicant argues that the references do not have the first frequency most closely precedes the selected communication having the second frequency. Gillis et al. discloses the first determined frequency with less the interference level that the first frequency precedes/surpasses the second frequency in rank (interference level), therefore the first frequency preceded the selected communication. Further in column 8 lines 55-60, column 9 lines 11-22 & lines 35-40, and column 10 lines 40-50, Kostic et al. teaches replacing frequencies within the frequency hop

pattern by the frequencies with higher quality rank associated with frequencies f_1 to f_N from the FFT element 506 of FIG.5 (column 7 lines 35-45) and teaches ranking method assigning the set of frequencies with highest quality first to replace the lower ones in the existing pattern orderly (column 10 lines 40-50 & column 9 lines 60-65). As the Gillis et al.'s method for modifying a frequency hopping sequence/pattern, it would have been obvious to implement Kostic et al.'s teaching of replacing and assigning frequencies of the higher rank orderly in the system N frequencies of the hop pattern in the Gillis et al.'s method for the purpose of having a frequency hopping wireless communication systems with reduced interference levels and increased capacity (column 1 lines 15-20 of Kostic et al.). Having modified Gillis et al.'s method with Kostic et al.'s teaching, the higher quality frequency determined by the first device is most closely precedes the one used in the selected communication of lower quality. Hence the references teach the first frequency with higher quality most closely precedes the selected communication as recited in the claim.

Claim Objections

2. Claims 1-12 are objected to because of the following informalities:

Claim 1, line 3: "the first device determining" is suggested changing to "determining by the first device"; line 10: "the first device instructing the second device" " is suggested changing to "instructing the second device by the first device"; lines 14-15: "the second device transmitting the selected communication on the first frequency" " is suggested changing to " transmitting the selected communication on the first frequency by the second device".

Claim 8, line 1: "the first device determining" " is suggested changing to "determining by the first device"; line 9-10: "the first device informing the second device" " is suggested changing to "informing the second device by the first device"; and lines 12-13: "the second device receiving" " is suggested changing to "receiving by the second device".

Claim 9, line 3: "the first device determining" is suggested changing to "determining by the first device"; lines 10-11: "the first device using said most closely preceding communication and the first frequency" is suggested changing to " using said most closely preceding communication and the first frequency by the first device"; and lines 15-16: "the second device receiving the selected communication" is suggested changing to " receiving the selected communication by the second device".

Claims 2-7 and 10-12 are directly or indirectly depend on objected claims 1 and 9.

Appropriate corrections are required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-6, 8-11, 13, 15-16, 18-19, 21-23, and 25-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gillis et al. (US 5323447) in view of Kostic et al. (US 6549784 B1).

Regarding **claims 1 & 9**, except explicitly specify the first frequency that the most closely precedes the selected communication of second frequency, Gillis et al. discloses a

frequency hopping wireless communication apparatus (10 FIG.1) and its method (FIG.2 & 3) of controlling frequency hopping wireless communications between first (10 FIG.1) and second (20 FIG.1) frequency hopping wireless communication devices, comprising: the first device determining that a first frequency of a frequency hopping pattern associated with transmissions by the second device/first device is better than a second frequency of the frequency hopping pattern for transmission of a selected communication from the second device/first device to the first device/second device via a wireless communication link (column 2 lines 7-45, where the first device/base unit determines the better one/the substitute channel for hop in FIG.3 & FIG.4) , wherein the second frequency is specified by the frequency hopping pattern for the selected communication (column 2 lines 17-22 & column 4 lines 10-30, wherein the second frequency is from the first group of predetermined communication channels/the hopping pattern) and the first frequency is specified by the frequency hopping pattern for a communication from the second device/first device to the first device/second device that most closely precedes the selected communication (column 2 lines 26-44, wherein the first frequency is specified by the second group of predetermined communication channels); responsive to said determining step, the first device instructing the second device via the wireless communication link to deviate from the frequency hopping pattern and use the first frequency for transmission of the selected communication instead of the second frequency (303-307 FIG.3, SEND OPCODE OF NEW CHANNEL FIG.4, column 2 lines 32-38, column 10 lines 25-30); and responsive to said instructing step , the second device transmitting the selected communication on the first frequency via the wireless communication link (FIG.4, column 10 lines 30-35). However Kostic et al. teaches determining the first frequency is the one that most closely precedes the selected

communication in the Abstract wherein one of the current frequencies should be replaced with one having a lower interference level; in column 8 lines 55-60, column 9 lines 11-22 & lines 35-40, and column 10 lines 40-50, further Kostic et al. teaches replacing frequencies within the frequency hop pattern by the frequencies with higher quality rank associated with frequencies f_1 to f_N from the FFT element 506 of FIG.5 (column 7 lines 35-45) and teaches ranking method assigning the set of frequencies with highest quality first to replace the lower ones in the existing pattern orderly (column 10 lines 40-50 & column 9 lines 60-65). As Gillis et al. measuring interference levels, replacing the one in the first group with a one having a lower interference level from a second group (column 2 line 64-column 3 line 6 stated in '784), at the time of the invention, it would have been obvious to a person of ordinary skill in the art to determining the first frequency is the one that most closely precedes the selected communication taught by Kostic et al. to clearly indicate the one having lower interference level is chosen for the purpose to have a frequency hopping wireless communications systems with reduced interference levels and increased capacity (column 1 lines 15-20).

Regarding **claim 2**, Gillis et al. discloses the determining step including considering first channel quality information associated with the first frequency and second channel quality information associated with the second frequency (205 FIG.2, 305 FIG.3, Abstract, column 2 lines 5-25, wherein the first device considering the second channel quality information associated with the second frequency; column 2 lines 33-38, wherein the first device considering the first channel quality information associated with the first frequency).

Regarding **claim 3**, Gillie et al. discloses the first channel quality information and the second channel quality information include information indicative of signal-to-noise plus

interference ratios respectively associated with transmissions on the first and second frequencies (column 1 lines 15-25, column 2 lines 55-60, column 4 lines 26-33, column 5 lines 20-30, column 8 lines 47-62, column 9 lines 2-8, wherein the interference, signal and noise can be measured).

Regarding **claim 4**, Kostic et al. teaches the second frequency (the one with larger interference) is fading (column 2 lines 1-6). Refer to the rationale of claim 1.

Regarding **claim 5**, Gillis et al. discloses the determining step includes considering sync word correlation information associated with transmissions on the first and second frequencies (203 FIG.2, column 4 lines 34-50, column 7 lines 15-22, column 7 line 66-column 8 line 2).

Regarding **claim 6**, Gillis et al. discloses that the determining step includes considering packet error information associated with transmissions on the first and second frequencies (column 8 lines 62-66).

Regarding **claim 8**, Gillis et al. disclose all subject matter claimed by executing FIG.2 and FIG.3 operations when finding a better channel than the further selected channel after the first found of first frequency cited in claim 1, and the new found better channel is the third frequency and the further selected channel is the fourth frequency.

Regarding **claims 10 & 11**. Gillis et al. discloses the determining step includes considering information indicative of potential interference at the first frequency and at the second frequency (column 2 lines 17-25, FIG.2 & FIG.3) and the determining that an interferer is operating at the second frequency (206-NO-BASE ENTER CHANNEL CHANGE ROUTINE FIG.2, where the interferer operating at the second frequency is determined by the first device/base unit).

Regarding **claims 13 & 19**, except explicitly specify the first frequency that the most closely precedes the selected communication of second frequency, Gillis et al. discloses a frequency hopping wireless communication apparatus (10/20 FIG.1, column 2 lines 17-25 wherein either the handset unit or base unit determines the quality of signal) comprising: a determiner (135, 120, 110 FIG.1, column 4 lines 1-33) for determining whether a first frequency of a frequency hopping pattern associated with transmissions by a further frequency hopping wireless communication/said apparatus is better than a second frequency of the frequency hopping pattern for receiving a selected communication transmitted by the further/said apparatus, wherein the second frequency is specified by the frequency hopping pattern for the selected communication and the first frequency is specified by the frequency hopping pattern for a communication from the further/said apparatus to said/further apparatus that most closely precedes the selected communication; and a wireless communication interface coupled to said determiner (130-140 FIG.1), and responsive to an indication from said determiner that the first frequency is better than the second frequency, for instructing/for the most closely preceding communication and the first frequency to inform, the further apparatus via a wireless communication link to deviate from the frequency hopping pattern and use the first frequency for transmission of the selected communication instead of the second frequency. However Kostic et al. teaches determining the first frequency is the one that most closely precedes the selected communication (Abstract wherein one of the current frequencies should be replaced with one having a lower interference level). As Gillis et al. measuring interference levels, replacing the one in the first group with a one having a lower interference level from a second group (column 2 line 64-column 3 line 6 stated in '784), at the time of the invention, it would have been obvious

to a person of ordinary skill in the art to determining the first frequency is the one that most closely precedes the selected communication taught by Kostic et al. to clearly indicate the one having lower interference level is chosen, to have a frequency hopping wireless communications systems with reduced interference levels and increased capacity (column 1 lines 15-20).

Regarding **claims 16 & 23**, except explicitly specify the first frequency that the most closely precedes the selected communication of second frequency, Gillis et al. discloses: a frequency hopping wireless communication apparatus (20/10 FIG.1, column 2 lines 17-25 wherein either the handset unit or base unit determines the quality of signal), comprising: a wireless communication interface (240-230 FIG.2) for receiving from a further frequency hopping wireless communication apparatus via a wireless communication link an indication (306 FIG.3) that a first frequency of a frequency hopping pattern associated with transmissions by said apparatus is better than a second frequency of the frequency hopping pattern for transmission of a selected communication from said/the further apparatus to the further/said apparatus via the wireless communication link, wherein the second frequency is specified by the frequency hopping pattern for the selected communication and the first frequency is specified by the frequency hopping pattern for a communication from said/the further apparatus to the further/said apparatus; and an indicator (225-220-250 FIG.1) coupled to said wireless communication interface and responsive to said indication for informing said wireless communication interface that the frequency hopping pattern will be deviated from in order to use the first frequency for transmission of the selected communication instead of the second frequency. However Kostic et al. teaches determining the first frequency is the one that most closely precedes the selected communication (Abstract wherein one of the current frequencies

should be replaced with one having a lower interference level). As Gillis et al. measuring interference levels, replacing the one in the first group with a one having a lower interference level from a second group (column 2 line 64-column 3 line 6 stated in '784), at the time of the invention, it would have been obvious to a person of ordinary skill in the art to determining the first frequency is the one that most closely precedes the selected communication taught by Kostic et al. to clearly indicate the one having lower interference level is chosen, to have a frequency hopping wireless communications systems with reduced interference levels and increased capacity (column 1 lines 15-20).

Regarding **claims 15 & 21**, Gillis et al. discloses the apparatus provided in a base unit of a cordless telephone system (10 FIG.1).

Regarding **claims 18 & 25**, Gillis et al. discloses the apparatus provided in a cordless telephone (FIG.1, Abstract)

Regarding **claims 22 & 26**, Gillis et al. disclose all subject matter claimed by executing the FIG.2 and FIG.3 operations when finding a better channel than the further selected channel after the first found of first frequency cited in claims 19 and 23, and the new found better channel is the third frequency and the further selected channel is the fourth frequency.

5. Claims 7, 12, 14, 17, 20 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gillis et al. (US 5323447) in view of Kostic et al. (US 6549784 B1) as applied to claims 1, 9, 13, 16, 19, and 23, and further in view of Souissi et al. (US 6327300 B1).

Regarding **claims 7 & 12**, Gillis et al. does not specify the devices are the Bluetooth devices. However Souissi et al. teaches the first and second devices are, respectively, Bluetooth

master and slave devices. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to have the base unit as the master device and the handset unit as the slave device in Gillis et al.'s apparatus taught by Souissi et al. to have the cordless telephone system compatible to the Bluetooth protocol to gain the mobility (column 1 lines 10-25).

Regarding **claims 14 & 20**, further Souissi et al. teaches the apparatus provided as a Bluetooth master device (51 FIG.2). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to have the base unit as the master device in Gillis et al.'s apparatus taught by Souissi et al. to have the cordless telephone system compatible to the Bluetooth protocol to gain the mobility (column 1 lines 10-25)

Regarding **claims 17 & 24**, further Souissi et al. teaches the apparatus provided as a Bluetooth slave device (52 FIG.2). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to have the base unit as the slave device in Gillis et al.'s apparatus taught by Souissi et al. to have the cordless telephone system compatible to the Bluetooth protocol to gain the mobility (column 1 lines 10-25)

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edith M Chang whose telephone number is 571-272-3041. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jayanti Patel can be reached on 571-272-2988. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Edith Chang
October 12, 2004

YOUNG T. TSE
PRIMARY EXAMINER